FOOD PLANT RECORDS OF *EUPLOEA CORE CORINNA* (W. S. MACLEAY) WITH SOME NOTES ON LARVAL COLORATION

By Elly Scheermeyer* and Myron P. Zalucki†
*Australian Environmental Studies, Griffith University, Nathan, Qld 4111
†Department of Entomology, University of Queensland, St Lucia, Qld 4067

Abstract

Two colour morphs of the larvae of *E. core corinna* are described and new food plant records are presented. The spatial distribution of *E. core* in relation to food plants is discussed.

Introduction

During the past three years we have made numerous field observations on *Euploea core corinna* (W.S. Macleay). Five new larval food plants were found and one of us (E. S.) found two previously unrecorded colour morphs of fifth instar larvae in addition to the normal black-banded orange and white form.

Larval colour morphs

The first of these had the normal orange-brown colour replaced by purple. It was found frequently in drier country near Charters Towers and Marlborough in Queensland. All larvae of this morph were feeding on rubber-vine, *Cryptostegia grandiflora* (Asclepiadaceae), sometimes side by side with normal-coloured larvae.

The second morph was very lightly coloured; greenish with white bands on the thorax and various shades of yellow and orange separated by white bands on the abdominal sections. The single specimen observed was feeding on a fig tree, *Ficus* sp. (Moraceae) in Townsville.

In laboratory experiments larvae of *E. core* often lose some of their orange-brown colour when developing at low temperatures (18 to 20°C) and become nearly black and white. The above colour morphs, however, were not produced during rearing at the following temperatures, 18, 20, 24, 27, and 30°C.

Introduced food plants

Euploea core corinna has been observed to breed on a variety of introduced plants which are grown as ornamentals in suburban gardens, viz. *Nerium* (oleander), *Mandevilla, Trachelospermum* (all Apocynaceae) and *Stephanotis, Hoya* and *Asclepias* (all Asclepiadaceae) (Common and Waterhouse, 1981). D.P.A. Sands (pers. comm.) noted complete development from egg to pupa on *Plumeria* (frangipani) (Apocynaceae) in Brisbane, 1983. On *Asclepias*, which has become a very common plant in the wild, survival of the larvae is extremely poor (Rahman *et al.*, 1984; Kitching and Zalucki, 1983) and pupae are rarely found, although oviposition occurs regularly. It would appear that the presence of *Asclepias* does not have any important effect on the distribution of *E. core* and the same is true for *Plumeria* (frangipani). The early instars usually die on *Plumeria* and only rarely is it used for oviposition. On *Allamanda* eggs and first instar larvae are also often encountered, but no complete development has yet been recorded. *Mandevilla, Trachelospermum* and *Stephanotis* are not common and would be of a minor influence on the distribution of the butterfly. On the other hand *Nerium* (oleander), is a very common garden ornamental being found in all major cities of Australia and many townships. It seems largely responsible for the presence of *E. core* in large cities devoid of native food plants. In the A.C.T. for example, where no native food plants occur, *E. core* has been observed to breed on *Nerium* in some years (Kitching *et al.*, 1978). These well watered garden ornamentals could have an important effect on the distribution inland. *Cryptostegia grandiflora* (Asclepiadaceae) was introduced to Australia after European settlement. In 1875 it was cultivated in Brisbane and, subsequently, it was taken north to the mining towns. There it has spread in the wild and has become a very common plant in central and north Queensland and along the Gulf rivers, reaching pest proportions in some areas (Kleinschmidt and Johnson, 1979). *Cryptostegia* is still extending its distribution inland and into the Northern Territory. It is usually found along road sides and river beds inland. Along these rivers, which are dry or nearly so during most of the year, considerable populations of *E. core* can be found. The tall trees or clusters of vines on the river banks provide shelter for the butterflies throughout the year. This plant has had an important effect on the distribution of *E. core* already, as can be inferred from the large populations of the butterfly found around *Cryptostegia*-infested areas. The food plant list of *E. core* is still incomplete. With recent plantings of rarer exotic species and native species from the rainforest in gardens, *E. core* encounters continually new potential food plants. Possibly *Ficus lyrata*, an exotic from tropical West Africa, and *Ficus pumila*, an exotic from China and Japan, may become regular food plants as eggs, third and fourth instar larvae have been noticed on these species. Other species in the Moraceae, Apocynaceae and Asclepiadaceae undoubtedly await recognition as food plants.

Native food plants

Below I have listed the native food plants of *Euploea core corinna.* They are grouped by family with notes on their distribution and usual habitat. Those previously unrecorded are marked by an asterisk (*).

Not all native food plants are used with equal frequency by *E. core.* Accordingly, I have separated food plants into three groups: frequently used, occasionally used and rarely used. A food plant was defined as frequently used when it was observed by many entomologists in various locations and larvae were present commonly throughout the breeding season. Occasionally used food plants were those on which larvae were found irregularly or those which could not be checked personally in their natural habitat (*Carissa ovata, Leichhardtia australis* and *Gymnanthera nitida*). Food plants on which larvae were found only once, but completed development, were described as rarely used. On *Maclura cochinchinensis* (Moraceae) only eggs and first instar larvae have been found so far, but it is used for oviposition frequently. The insects' preferences for particular food plants seem to vary locally. Disregarding garden ornamentals the native *Parsonsia straminea* seems highly preferred in the Brisbane area whereas in Townsville and the Burdekin area, the preferred species is introduced *Cryptostegia grandiflora.* Both plants are very common and this may be why they are used relatively more often than other not so common species of food plants.

The following abbreviations are used: W.A. (Western Australia), N.T. (Northern Territory), Q. (Queensland), N.S.W. (New South Wales), V. (Victoria) and S.A. (South Australia).

MORACEAE

Ficus obliqua: W.A., Q., N.S.W.; also in S.E. Asia, Philippines, Indonesia and New Guinea (Beard, 1970; Williams, 1979; Beadle *et al.*, 1972; Jacobs & Pickard, 1981). In the Kimberley region of W.A. and along the coast in N.S.W. and Q. Frequently used.

F. platypoda: W.A., N.T., Q., S.A.; endemic in Australia (Beard, 1970; Jessop, 1981; Williams, 1979; Black, 1977). A wide spread tree, especially of rocky outcrops and gullies. Frequently used.

**F. coronata*: W.A., N.T., Q., N.S.W., V.; endemic in Australia (Beard, 1970; Jacobs & Pickard, 1981; Beadle *et al.*, 1972; Willis, 1972). Along the coast in or near rainforest, inland confined to gullies. Rarely used, recorded by R. L. Kitching, nr Brisbane, 1983.

**F. benjamina*: N.T., Q.; also in S.E. Asia. A tree native to northern Q. but introduced in cities along the east coast and to the N.T. (information supplied by Q. Herbarium). Frequently used, recorded by C. Hagen, Brisbane in 1983.

APOCYNACEAE

Parsonsia straminea: Q., N.S.W.; endemic in Australia (Williams, 1979; Jones & Gray, 1977; Beadle *et al.*, 1972; Jacobs & Pickard, 1981). A widespread climber along or near the coast, mainly in wet sclerophyll forest on open sunny places. Very common in southern Q. and N.S.W. Frequently used.

**P. eucalyptophylla*: Q., N.S.W.; endemic in Australia (Williams, 1979; Jones & Gray, 1977; Jacobs & Pickard, 1981). A climber especially in drier areas in southern Q. and northern N.S.W. Occasionally used, recorded by E. Scheermeyer, Brisbane, 1983.

**Ichnocarpus frutescens*: Q.; also in E. India and the Archipelago (Bailey, 1900). Rarely used, recorded by E. Scheermeyer, Magnetic Island, 1980.

Carissa ovata: Q., N.S.W.; endemic in Australia (Williams, 1979; Jacobs and Pickard, 1981). A widely distributed shrub from northern N.S.W. northward, especially along banks of coastal creeks and on well drained ridges in dry vine scrub and brigalow areas. Occasionally used, originally recorded by Sankowsky (1978) at Wallaville (Q.).

ASCLEPIADACEAE

Hoya australis: W.A., N.T., Q., N.S.W.; also in some Pacific Islands (Jones & Gray, 1977; Jacobs & Pickard, 1981). A wide spread climber found in rainforest, along stream banks and on rocky escarpments from northern N.S.W. northward. Frequently used.

Leichhardtia australis (*Marsdenia leichhardtiana*): W.A., N.T., N.S.W., V., S.A.; endemic in Australia (Blackall & Grieve, 1974; Beard, 1970; Ewart & Davies, 1917; Jessop, 1981, Jacobs & Pickard, 1981; Ewart, 1930; Willis, 1972; Black, 1965). Usually found inland near water courses. Occasionally used, originally recorded by Edwards (1948).

Secamone elliptica: N.T., Q., N.S.W.; endemic in Australia (Bailey, 1900; Jacobs & Pickard, 1981). A large, thick stemmed, tall climber in dry or littoral rainforest from the subtropics northward. Occasionally used, originally recorded by Sankowsky (1975).

Gymnanthera nitida: W.A., N.T., Q.; endemic in Australia (Beard, 1970; Ewart & Davies, 1917; Jones & Gray, 1977; Bailey, 1900). A tall climber along stream banks, mainly near the coast. Occasionally used, originally recorded by Sankowsky (1975).

Sarcostemma australe: W.A., N.T., Q., N.S.W., S.A.; endemic in Australia (Beard, 1970; Blackall & Grieve, 1974; Jessop, 1981; Jones & Gray, 1977; Williams, 1979; Jacobs & Pickard, 1981; Black, 1965). A widespread scrambling bush with rudimentary leaves, along the coast and inland usually in open forest on rocky hills or in *Acacia* scrub. Occasionally used (Sankowsky, 1975; Atkins, 1975). The tender stems are eaten.

Marsdenia suaveolens: N.S.W.; endemic in Australia (Jacobs & Pickard, 1981; Beadle *et al.*, 1972). A widespread shrub in heath, but often scrambling in forests. Very little is known of this plant as a food plant–it is mentioned in Rainbow (1907).

Cynanchum carnosum (*Ischnostemma carnosum*): W.A., N.T., Q., N.S.W.; endemic in Australia (Beard, 1970; Jacobs & Pickard, 1981). A climber mainly found along the coast from northern N.S.W. to the Kimberley region in W.A. Occasionally used, originally recorded by Sankowsky (1975).

From this description of the range of food plants it becomes clear that *E. core* will be found mainly in open forest and woodland along the coast and near the edges of rainforest. Inside the rainforest, however, it is rarely seen. Inland the distribution of *E. core* seems limited to areas with vine thickets, which often occur near natural springs, along river courses, in gullies of usually rocky ranges and in sandstone or limestone gorges.

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